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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,700	06/27/2003	Michael David Mundt	S01.12-0979/STL 11229.00	9643

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EXAMINER	
CHEN, TIANJIE	

ART UNIT	PAPER NUMBER
2652	

DATE MAILED: 06/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/608,700	MUNDT ET AL.	
	Examiner	Art Unit	
	Tianjie Chen	2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,7,8,12,15,16 and 20-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,7,8,12,15,16 and 20-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *06/27/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Non-Final Rejection

Election/Restrictions

1. Applicant's election without traverse of Species II, claims 1. 3. 7, 8, 12, 15, 16, 20-28 in the reply filed on 04/27/2005 is acknowledged.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1. 3. 7, 8, 12, 15, 16, 20-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites: "the trailing edge portion having a cross nodal portion and off nodal portions and the cross nodal portion having a cross width dimension no larger than a cross width dimension of the off nodal portions and the slider body including a raised bearing surface or surfaces elevated above milled surface or surfaces and the raised bearing surface or surfaces along the trailing edge portion having a narrow cross width profile within the cross nodal portion of the slider body to limit off nodal pressurization."

Claims 12, 20 and 21 recite: "to limit off nodal pressurization."

All theses claims recite features of "nodal," "cross nodal,"' and "off-nodal." The dimension of nodal in the profile is shown in Figs. 3 and 4, which is determined by certain parameters including the parameters of disk used. Applicant discloses in specification p. 4 that the "profile or shape varies with respect to time since the shape or profile is not constant;" and the "height profile or field is also sensitive to disc

waviness." Applicant further discloses that "air bearing pressure profiles are sensitive to distortions in the height profile or height field between the air bearing slider and the disc surface or media. Fabrication processes and disc characteristics, such as radial coning and disc waviness introduce distortions in the height profile or height field of the slider-disc interface," and "the profile or shape will vary with respect to time and will shift depending upon the phase of angle Θ." It clearly shows that the profile strongly depends on disc characteristics, such as radial coning and disc waviness, etc.. Disk is not an element of the claimed "air bearing slider," which is out of the scope of the claims. Therefore, as far as only an "air bearing slider" is clamed as in these claims, the profile is not defined since it depends on what kind of disk is used with the slider; therefore, the dimensions of the "cross nodal" and the "off-nodal" are not defined. It renders indefiniteness.

The rest claims are rejected for the dependence from the rejected claims, respectively.

In the following examination, the limitations related to "nodal", "cross nodal", and "off-nodal" will not gain weight in determining patentability.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, 7, 12, 15, 21, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Ye et al (US 5,982,582).

Claim 1, Ye et al shows in Fig. 6 an air bearing slider including: a slider body including a leading edge, a trailing edge and opposed sides and including an elongate length between the leading and trailing edges forming a leading edge portion, a trailing edge portion and an intermediate portion proximate to a center axis of the slider body and a cross width between the opposed sides and the intermediate portion having a length dimension no larger than length dimensions of the leading edge portion and the trailing edge portion and, as the disk is chosen in the measurement satisfy certain condition, the trailing edge portion would have a cross nodal portion and an off nodal portions and the cross nodal portion having a cross width dimension no larger than a cross width dimension of the off nodal portions, and the slider body including raised bearing surfaces on 81, 82, and 83 elevated above milled surface and the raised bearing surfaces along the trailing edge portion having a narrow cross width profile 83 within a possible cross nodal portion of the slider body, and the raised bearing surfaces along the intermediate portion having an expanded cross width profile relative to the narrow cross width profile of the raised bearing surfaces along the trailing edge portion of the slider body.

Claim 21, Ye et al shows an air bearing slider in Fig. 6 including: a slider body having a leading edge, a trailing edge and opposed sides; and raised bearing surfaces having perimeter surface profile including a narrow leading edge profile width, an expanded intermediate profile width and a trailing edge profile having a narrow profile width relative to the expanded intermediate profile width.

Claim 3, Ye et al further shows that the raised bearing surfaces include opposed angled side rails 81 and 82 angled outwardly in a direction of the trailing

edge and including a trailing edge center pad 83 spaced from the opposed sides of the slider body.

Claim 23 Ye et al further shows a leading edge stepped surface n 81 and 82 elevated from a cavity surface and recessed from the angled side rails.

Claim 7, Ye further shows that the raised bearing surfaces include raised bearing rails 81 and 82 on opposed sides of a cross axis of the slider body along an intermediate portion of the slider body spaced from the leading and trailing edges of the slider body and the raised bearing rails angled outwardly in a direction toward the trailing edge of the slider body to form a narrow profile width along the leading edge portion of the slider body.

Claim 12, as described above, Ye et al shows an air bearing slider including: a slider body having a leading edge, a trailing edge, opposed sides and a cross width between the opposed sides and the slider body including a raised bearing surface or surfaces elevated above a recessed surface or surfaces and the raised bearing surface or surfaces having a cross width profile including narrow cross width profiles along leading and trailing edge portions of the slider body and an expanded cross width profile along an intermediate portion of the slider body having a length dimension no larger than the leading and trailing edge portions of the slider body to limit off nodal pressurization.

Claim 15, as described above, Ye et al shows that the raised bearing surface or surfaces include divergent bearing rails which extend outwardly toward the opposed sides of the slider body in a direction of the trailing edge of the slider body.

4. Claims 12, 15, 20, 21, 25, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Wang et al (US 6,275,467).

Claim 20, Wang et al shows an air bearing slider including: a slider body including a leading edge, a trailing edge and opposed sides; and bearing surface means on the slider body for providing a nodal bearing pressure profile to limit off-nodal pressurization.

Claim 21, Wang et al shows an air bearing slider in Fig. 9 including: a slider body having a leading edge, a trailing edge and opposed sides; and raised bearing surfaces 60+62+63 having perimeter surface profile including a narrow leading edge profile width at boundary between 54 and 63, an expanded intermediate profile width and a trailing edge profile having a narrow profile width relative to the expanded intermediate profile width.

Claim 25, Wand et al further shows that the raised bearing surfaces 81 and 82 include a divergent bearing surface including a tapered leading edge proximate to the leading edge of the slider body and the divergent bearing surface extends outwardly from the tapered leading edge in a direction of the trailing edge and including a stepped bearing surface proximate to the divergent bearing surface to pressurize the divergent bearing surface.

Claim 26, Wang et al further shows that the stepped bearing surface has a wedge shaped profile.

Claim 12, as described above, Wang et al shows an air bearing slider including: a slider body having a leading edge, a trailing edge, opposed sides and a cross width between the opposed sides and the slider body including a raised bearing surface or surfaces elevated above a recessed surface or surfaces and the raised bearing surface or surfaces having a cross width profile including narrow cross width profiles along leading and trailing edge portions of the slider body and an expanded cross width

profile along an intermediate portion of the slider body having a length dimension no larger than the leading and trailing edge portions of the slider body to limit off nodal pressurization.

Claim 15, as described above, Wang et al shows that the raised bearing surface or surfaces include divergent bearing rails which extend outwardly toward the opposed sides of the slider body in a direction of the trailing edge of the slider body.

Allowable Subject Matter

5. Claims 8, 16, 22, 24, 27, and 28 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

- With regard to claims 8 and 22, as the closest reference, Ye et al (US 5,982,582) shows a air bearing slider, wherein the raised bearing surfaces include raised bearing rails and on opposed sides of a cross axis of the slider body along an intermediate portion of the slider body spaced from the leading and trailing edges of the slider body and the raised bearing rails angled outwardly in a direction toward the trailing edge of the slider body to form a narrow profile width along leading edge portion and the profile width along the intermediate portion of the slider body, **but fails to show** that the raised bearing rails extend from a center relative to opposed sides raised bearing surface having a narrow cross width profile, and the slider including a stepped bearing surface elevated from a cavity surface having a narrow cross width profile along the leading edge portion and an expanded profile width along the intermediate portion of the slider body, wherein the raised bearing rails and the center raised bearing surface are formed on the stepped bearing surface.

- With regard to claim 16, as the closest reference, Wang et al (US 6,275,467) shows a air bearing slider, wherein a raised bearing surface or surfaces include divergent bearing rails which extend outwardly toward the opposed sides of the slider body in a direction of the trailing edge of the slider body; **but fails to show** a stepped bearing surface recessed from the raised bearing surface and elevated above a cavity surface and the divergent bearing rails are formed on the stepped bearing surface.
- With regard to claim 24, as the closest reference, Ye et al (US 5,982,582) shows a raised bearing surfaces include opposed angled side rails angled outwardly in a direction of the trailing edge and including a trailing edge center pad spaced from the opposed sides of the slider body; **but fails to show** that the slider body includes a stepped bearing surface having a tapered outer profile elevated from a cavity surface and the angled side rails are formed on the tapered stepped bearing surface.
- With regard to claim 27, as the closest reference, Wang et al (US 6,275,467) shows an air bearing slider including: a slider body having a leading edge, a trailing edge and opposed sides; and raised bearing surfaces having perimeter surface profile including a narrow leading edge profile width at boundary between 54 and 63, an expanded intermediate profile width and a trailing edge profile having a narrow profile width relative to the expanded intermediate profile width, and the raised bearing surface include a divergent bearing surface, a tapered leading edge to form the narrow profile width at the leading edge; **but fails to show** a raised center pad proximate to the trailing edge spaced from opposed sides.

Conclusion

6. The prior art made of record in PTO-892 Form and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tianjie Chen whose telephone number is 571-272-7570. The examiner can normally be reached on 8:00-4:30, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on 571-272-7579. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chen Tianjie

TIANJIE CHEN
PRIMARY EXAMINER